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Improving Patient Health Engagement with Mobile Texting: A Pilot Study in the H&N Post-Operative Setting

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Abstract

Background—Cell phone ownership is nearly universal. Messaging is one of its most widely used features. Texting-based interventions may improve patient engagement in the post-operative setting, but remain understudied.

Methods—Patients were recruited before discharge and received automated daily texts for one week, providing information about expected recovery. Patients were encouraged to text questions to providers, which were triaged for intervention. Web-based surveys solicited patient feedback about the platform.

Results—Thirty-two patients were approached, 23 (72%) patients enrolled. All study patients texted their providers, although frequency (median: 7 texts, range: 2–44) varied. Unmarried patients and those facing surgical complications used the platform more frequently. Mean patient satisfaction with the platform was high (mean = 3.8 on a 4 point Likert scale).

Conclusions—Text messaging appears feasible in the acute post-operative setting and potentially improves engagement of head and neck cancer patients. Further study is warranted to confirm scalability and impact.

Keywords

mHealth; text messaging; health informatics; patient engagement

INTRODUCTION

Over 90% of American adults owned a cell phone in 2015, up from 65% in 2005.¹ Over 80% of cell phone users report sending or receiving text messages.² Essentially all (99%) texts are opened, with 90% being read within three minutes.³

Short message service (SMS) and multimedia message service (MMS)-based texting programs and smartphone applications are being introduced into the healthcare setting.⁴⁻⁶ Prospective research remains limited, but early studies indicate that digital mobile health (mHealth) interventions can improve patient engagement and adherence to treatment.^{7, 8} Real-time mobile links between patients and providers can relieve logistical burdens of facility-based care, improve symptom tracking, enhance patient compliance, and shift symptom control to the at-home setting.⁹

Immediate post-operative care is ripe for mHealth engagement. Surgical recovery is a traumatic part of the overall cancer care continuum and is punctuated by discomfort, disability, and anxiety. The emotional burden of cancer surgery, particularly in the head and neck region, is heightened by physical disfigurement and prognostic uncertainty. Poor post-operative recovery can handicap tolerance of rigorous downstream treatments, such as radiotherapy and chemotherapy, and degrade long-term outcomes. Surgeons and allied providers field drop-in visits to manage minor problems which distract from urgent surgical duties. Alternatively, real-time or asynchronous mobile communication can empower appropriate patient self-care and decompress provider schedules. For example, patients undergoing breast reconstruction surgery who were enrolled in a text messaging program post-operatively had fewer clinic visits, called the clinic fewer times, and had their drains removed earlier.¹⁰ Others have even incorporated mobile technology to communicate with patient's families in the perioperative setting.¹¹ Unfortunately, only one-quarter of physicians currently incorporate mHealth into their routine practices, with use limited to appointment reminders in 2/3 cases.¹²

For this project, we empowered a subspecialty surgical team at a tertiary referral center with a commercial health informatics platform to prospectively pilot an automated text-based intervention to address the immediate post-operative information and care engagement needs of head and neck cancer patients. To our knowledge, this is the first clinical study of its kind in this specific cancer population.

MATERIALS AND METHODS

Study Design

Patients undergoing curative surgery for a diagnosis of head or neck malignancy were recruited to this institutionally approved study. Eligible patients had to be 18 years old or older, fluent in English, and own a mobile phone with SMS texting capability. Patients were recruited during their post-operative hospital stay. Patients who refused participation were offered a non-enroller survey. Enrolled patients were counselled regarding mobile communication privacy rights, provided written informed consent, and completed a baseline demographic survey. They were then oriented to a SMS/MMS text messaging platform

designed and hosted by SenseHealth (New York, NY, USA). This platform started to send once-daily scripted text messages the day after hospital discharge for a total of 7 days. Patients with questions or concerns had the opportunity to contact their care team via text or phone call. Additionally, patients with wound-related concerns had the option of sending images via MMS messaging.

Providers could engage the SenseHealth platform through a native iOS/Android smartphone app or secure webpage to access patient questions and messages. All patient messages were triaged by a medical student; care-related questions were forwarded to a clinic nurse, physician assistant, or physician. Replies to patient questions could travel either by text message via the SenseHealth app or by direct phone call, at the provider's discretion. After delivery of all scheduled messages, the patients were then sent a Web-based satisfaction survey that was accessed via hyperlink. Patients could continue to use SenseHealth after completion of scripted texts to communicate questions or concerns.

Script Design

Scripted text messages were composed and refined by the trial's clinical investigators (see Supplementary Table 1 for full list of messages). Messages were designed to remind patients about general wound care instructions/signs of infection, and to provide motivational support during the acute recovery process. Patients were counseled with each text message to access 911 in the event of an emergency. Messages were sent chronologically to optimize relevance to the patient's recovery at that particular point in time. In this vein, two separate scripts were created, one for patients who could eat orally and another for patients with a temporary nasogastric tube.

Patient Questionnaires

Patients who refused participation were offered a non-enroller survey to collect reasons for non-participation. The questionnaire covered the following topics: baseline use of texting, privacy concerns, comfort with texting, and trust in providers (Supplementary Table 2). Enrolled patient satisfaction was assessed by an instrument adapted from the University of California San Francisco Client Satisfaction Questionnaire.¹³ The surveys covered quality of service, outcome of service and general satisfaction, with responses scaled according to a four-point Likert scale (Supplementary Table 3). Surveys were self-administered via mobile or web-based access by the SenseHealth platform.

Statistics

Continuous variables were presented as mean $\pm$ standard deviation and compared using two-sided Student's t-test. Discrete variables were presented as percentages and were compared using Fisher's exact test or the Pearson Chi-Square, as appropriate. All statistical analysis was performed using IBM SPSS v24.0 (IBM Corp., Armonk, NY, USA).

RESULTS

Patient Characteristics

Thirty-two patients were screened between December 2015 and April 2016. Twenty-three (72%) agreed to participate; however, two of these patients dropped out because they immediately transferred to an outside provider and were not eligible for analysis. Most study participants were Caucasian (57%), and gender distribution was balanced (52% males, 48% females). Patient demographics are summarized in Table 1. Two enrolled patients did not complete the satisfaction survey. Five of the 9 non-enrollers completed surveys to explain reasons for declining. All of those who declined participation were male (Table 2). Non-enrollers were on average older than those who participated (66 vs 52.1 years old; $p = 0.007$).

Mobile Platform Use

A total of 252 text messages were sent by study participants; providers responded with 305 messages. The mean number of text messages sent and received by each patient was 12 and 14.5 respectively. Four smartphone pictures of surgical wounds were sent by 3 different patients. Usage statistics are shown in Table 3. Texting frequency varied widely, with participants sending as many as 44 messages or as few as 2. We cataloged “healthcare questions” as discrete question/answer text message chains which specifically addressed a patient’s medical care; 20 healthcare question conversations (range: 1–5) took place among 8 patients.

We dichotomized the study cohort according to median number of sent text messages. Participants who sent more than the median number ($n=7$) of text messages were considered to be high platform utilizers. There were no significant demographic differences (age, gender, income, education level, etc.) between high and low utilizers with the exception of marital status and presence of postop complications (Table 4). Participants who were not married (20.8 ± 14.1 vs. 8.5 ± 8.0 ; $p = 0.019$) or who had postop complications (27.4 ± 12.3 vs. 7.2 ± 5.07 ; $p < 0.001$) used the platform significantly more than their counterparts.

Impact on Post-Operative Management

Five of the 20 healthcare question conversations were escalated to the surgical team after initial triage by research staff. One patient sent an image concerning for cellulitis along the incisional scar of a radical neck dissection. The patient had their appointment moved up by 3 days, with intravenous antibiotics started at that appointment. Another patient developed a small seroma at their incision site and subsequently sent a picture along with a list of symptoms. After evaluation by otolaryngology (ENT) staff, the patient was offered reassurance. This patient had a coincidental appointment with their primary care physician who then advised them to go to the emergency department. Evaluation by the on-call ENT resident determined they did not have an infection, and they were advised to follow-up with their surgeon at their scheduled appointment. Another patient sent a picture of their mouth and throat following trans-oral robotic surgery out of concern of “discoloration.” This patient also complained of headache and tinnitus. ENT providers determined that the “discoloration” was fibrinous exudate and offered reassurance; however, given his other

symptoms, a computed tomography (CT) scan was ordered and revealed incomplete thrombosis of right internal jugular vein. The patient was informed via phone and was started on enoxaparin. Two additional instances of clinical impact included refilling one patient's exhausted pain medications and answering another patient's question about a drug-drug interaction.

Non-Enrollers

Five out of the nine patients (56%) completed a non-enroller survey. The results are summarized in Table 5. Two patients expressed a personal preference for voice calls. Three patients were concerned about privacy issues of sending personal health-protected information by text. Interestingly, all five patients remained comfortable with general use of their smartphone and expressed trust in their health-care providers. Most patients who did not complete this survey reported that they did not know how to text.

Patient Satisfaction

Patient survey responses (Table 6) yielded a mean satisfaction score of 3.8 on a 4-point Likert scale (with a score of "4" signifying greatest satisfaction). Most users (89%) thought the platform was "extremely easy" to use. Ninety-five percent responded that the mobile platform helped them deal more effectively with their health. No participants indicated dissatisfaction with the service. All but one participant indicated that they'd like to use a similar platform with other medical providers.

DISCUSSION

Development of digital patient communication and engagement tools has accelerated.¹⁴ Recent studies have explored the use of text-based mHealth for appointment reminders¹⁵, medication adherence, and health promotion such as smoking cessation¹⁶ and weight loss¹⁷. SMS/MMS text-based medication reminders have largely focused on patients with chronic diseases such as diabetes¹⁸, HIV/AIDS¹⁹, and heart disease.²⁰ Additional work has piloted use of text-based tools after surgery to remotely monitor surgical wounds, particularly with photos taken on patients' cell phones.⁵ However, published experience addressing specific applications for cancer patients, particularly head and neck cancer surgical patients, remains limited.

Our current results suggest that the use of a text message platform in the acute post-operative setting is feasible and potentially improves head and neck cancer patient engagement with treatment. Furthermore, our platform can document and facilitate remote management of post-operative complications, potentially saving costs of clinic-based care across all stakeholders.

There was a 72% participation rate among patients we approached for the study. We used a convenience sample of consecutive patients who were approached at random time points during their hospital admission following surgery. Head and neck cancer surgery frequently requires complex reconstruction and prolonged recovery. Many patients experience disabling symptoms²¹, including inability to eat, taste, smell, speak, and/or sleep comfortably. Timing of recruitment may have impacted patient enrollment, although we could detect no obvious

trends in this small cohort. More likely reasons for non-participation, as elicited by our limited survey results, include privacy concerns and discomfort with texting. Interestingly, patients who refused to participate were more likely to be male and older; this mirrors a general trend towards higher use of texting among women and younger adults in the U.S. population.^{2, 22, 23} Specific patients may also contend with varying degrees of grief and depression across their hospital stay, which may influence interest in participation.

We used the number of text messages sent by patients as a measure of patient use. Patients sent an average of 11.6 messages, with large variability across individuals. Frequency of texting is not necessarily a surrogate for platform usability/efficacy. Many contextual factors may impact use patterns, such as age, comorbidities, social support, race, socioeconomic, and individual communication styles. Unsurprisingly, presence of post-op problems and/or lack of spousal support significantly incentivized patient use in our cohort. Appropriate patient selection, such as focused enrollment of patients undergoing more extensive surgery for advanced disease, patients with limited social support, and/or younger, more tech-savvy patients may optimize rates of immediate and late return on mobile digital investments. Alternatively, the psychological reassurance of improved patient-provider connectivity could appeal broadly across a wide spectrum of patients.

Intuitive computer-human interfaces and simplicity are crucial to adoption of patient-facing health informatics.²⁴ This particularly true for the elderly, who are disproportionately impacted by cancer and generally display less enthusiasm towards mobile communication.²⁵ Most of our subjects (90%) thought the texting platform was “extremely easy” to use, suggesting that SMS/MMS based communication has potentially broad generational reach. Several studies have evaluated app-based mobile healthcare platforms with high success in younger populations.^{5, 9} However, native mobile apps introduce additional complexity, including installation, update maintenance, push notification settings, and engagement separate from standard use of the phone. Apps may add functionality beyond texting, but this functionality increases use friction and potential attrition.

Our platform facilitated remote diagnosis and potentially expedited intervention for venous thrombosis and localized infection. The ability of the SMS/MMS to facilitate remote early management of simple, albeit potentially serious complications, coupled with the ease of fulfilling simple requests (e.g. questions about potential drug-drug interaction and medication refills), directly addresses the “Triple Aim” of value-based care and aligns cancer care with 21st century healthcare priorities.^{26, 27} Complex cancer patients potentially benefit from being evaluated by established providers, rather than by ad hoc acute care or ER-based coverage. While there are limitations to remote evaluation versus in-person physical examination, high-resolution cameras on most mobile phones are able to detect subtle changes in a wound. Other studies employing digital still images or video have confirmed feasible remote assessment of surgical wounds, with fewer unscheduled post-operative visits.^{5, 28}

There are obvious limitations to this early pilot work. First, our small sample lacked the size and socioeconomic/cultural diversity to establish firm insight into potential relationships between patient demographics and acceptance of digital communication. Therefore, we

intend the findings of this pilot study not to impact current care, but to inform larger follow-on studies. Although head and neck cancer surgical patients are an important high-risk cancer population, our results lack direct relevance to other cancer disease sites and treatment modalities. Patient attrition constrained our study power and introduced potential patient self-selection biases which will require formal characterization. Follow-up prospective studies emphasizing patient reported outcomes and financial resource utilization will be necessary to demonstrate broader deployment potential and impact on patient-centric care value.

The compliance/use standards of remote digital care communication remain fluid and uncodified. This accentuates baseline risks of high-stakes clinical care, such as post-operative management. Any technology which enables enhanced remote healthcare must meet all ethical and legal standards of face-to-face care. Users must maintain privacy and data security standards, and providers must appropriately document all digital interactions, particularly if reimbursement is eventually to be sought. During these early days of use, head and neck surgeons will need to maintain a low threshold for direct follow-up evaluation of patients reporting problems. Continued work will be required to characterize and improve the triaging capabilities of remote digital communication. Text platforms such as ours are currently intended to supplement, not replace direct care. Our current platform provides only asynchronous communication, and is not designed to support immediate responses to patient messages. Accordingly, all our routinely scheduled SMS messages are preceded by instructions to patients to call 911 in case of emergency. Ultimately, SMS platforms such as our may be staffed 24/7 by dedicated technical staff or providers; however, we envision this to follow initial confirmation of the value proposition and sustainability of the current initial service.

CONCLUSIONS

Our experience suggests that digital interventions may improve head and neck cancer patient engagement with providers in the post-operative setting. Patients reported that they found our texting platform to be simple and effective. Concerns over privacy and unfamiliar mobile technology, as well as the personal nature of the cancer treatment experience, argues for development of formal patient selection strategies. Texting may reduce stakeholder costs via remote identification and treatment of complications. However, further study will be necessary to quantify cost savings, to confirm our pilot results at greater scale, and to expand the relevance of this approach to additional cancer populations.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Study Cohort Characteristics (N = 21)

	N Cases (%) / Years
Age*	52.1 ± 12.7 yrs
Gender	
Male	11 (52.4%)
Female	10 (47.6%)
Marital Status	
Married	15 (71.4%)
Not Married	6 (28.6%)
Race	
Caucasian	12 (57.1%)
Hispanic/Latino	5 (23.8%)
Black or African	2 (9.5%)
Native American	1 (4.8%)
Prefer not to answer	1 (4.8%)
Insurance Status	
Privately Insured	16 (76.2%)
Medicaid/Medicare	3 (14.3%)
Uninsured	0
Other	2 (9.5%)
Employment Status	
Currently Employed	11 (52.4%)
Currently Unemployed	2 (9.5%)
Retired	7 (33.3%)
Other	1 (4.8%)
Highest Education level	
Less than HS diploma	2 (9.5%)
HS diploma	7 (33.3%)
Some College	7 (33.3%)
BA, BS, or other degree	3 (14.3%)
Graduate Education	2 (9.5%)
Yearly Income	
0–10k	1 (4.8%)
11–20k	2 (9.5%)
21–40k	8 (38.1%)
41–60k	3 (14.3%)
>60k+	6 (28.6%)
No answer	1 (4.8%)
Tobacco Use	
Current User	1 (4.8%)
Former User	9 (42.9%)

	N Cases (%) / Years
Never User	11 (52.4%)
Alcohol Use	
Current User	10 (47.6%)
Former User	0
Never User	11 (52.4%)
Illicit Drug Use	
Current User	0
Former User	0
Never User	21 (100.0%)
H&N Cancer Site	
Benign/Other	5 (23.8%)
Oropharynx cancer	7 (33.3%)
Thyroid Cancer	3 (14.3%)
Salivary Gland Cancer	2 (9.5%)
Oral cavity cancer	2 (9.5%)
Skin cancer	2 (9.5%)
Paranasal sinus and nasal cavity cancer	0
Larynx Cancer	0
Surgery	
Trans-oral robotic surgery	2 (9.5%)
Open resection w/ free flap reconstruction	2 (9.5%)
Open resection and/or neck dissection	16 (76.2%)
Minor Procedure/Other	1 (4.8%)

* mean $\pm$ standard deviation

Table 2

Enrollers vs. Non-Enroller Age/Gender

	Non-Enroller (N=9)	Enroller (N=21)	P-value
Age *	66 ± 10.2	52.1 ± 12.7	0.007
Gender			0.013
Male	9 (100%)	11 (52%)	
Female	0	10 (48%)	

*
mean ± standard deviation

Table 3

Text Messages Sent and Received

Study Patient	SMS Texts From Patient	MMS Texts From Patient	Texts from Providers	Healthcare Questions	Phone Calls	Clinical Issue
Patient 1	7	0	10	0	0	
Patient 2	3	0	7	0	0	
Patient 3	21	0	16	2	0	
Patient 4	7	0	11	0	0	
Patient 5	8	0	15	2	0	
Patient 6	44	2	36	4	2	Cellulitis
Patient 7	31	0	25	2	1	Pain Med Refill
Patient 8	3	0	9	0	0	
Patient 9	2	0	5	0	1	
Patient 10	12	1	19	2	5	Seroma
Patient 11	19	0	26	2	0	Pharmacy issue
Patient 12	2	0	6	0	1	
Patient 13	7	0	9	0	0	
Patient 14	14	0	16	0	0	
Patient 15	5	0	7	0	0	
Patient 16	7	0	12	1	0	
Patient 17	31	1	46	5	2	Thrombosis
Patient 18	6	0	7	0	0	
Patient 19	12	0	8	0	0	
Patient 20	2	0	6	0	0	
Patient 21	9	0	9	0	0	

Table 4

Univariate Analysis of Text Platform Use

	Low Platform Use (N=11)	High Platform Use (N=10)	P-value
Age *	52.3 ± 11.6	51.9 ± 14.4	0.949
Number of Texts *	4.6 ± 2.2	20.1 ± 11.8	<0.001
Gender			1.0
Male	6 (54.5%)	5 (50%)	
Female	5 (45.5%)	5 (50%)	
Marital Status			0.004
Married	11 (100%)	4 (40%)	
Not Married	0	6 (60%)	
Race			0.393
Caucasian	7 (63.6%)	5 (50%)	
Hispanic/Latino	1 (9.1%)	4 (40%)	
Black or African	1 (9.1%)	1 (10%)	
Native American	1 (9.1%)	0	
Prefer not to answer	1 (9.1%)	0	
Insurance Status			0.765
Privately Insured	9 (81.8%)	7 (70%)	
Medicaid/Medicare	1 (9.1%)	2 (20%)	
Uninsured	0	0	
Other	1 (9.1%)	1 (10%)	
Employment Status?			0.363
Currently Employed	5 (45.5%)	6 (60%)	
Currently Unemployed	2 (18.2%)	0	
Retired	4 (36.4%)	3 (30%)	
Other	0	1 (10%)	
Highest Education level?			0.263
Less than HS diploma	1 (9.1%)	1 (10%)	
HS diploma	4 (36.4%)	3 (30%)	
Some College	4 (36.4%)	3 (30%)	
BA, BS, or other degree	0	3 (30%)	
Graduate Education	2 (18.2%)	0	
Yearly Income			0.188
0–10k	1 (9.1%)	0	
11–20k	0	2 (20%)	
21–40k	3 (27.3%)	5 (50%)	
41–60k	1 (9.1%)	2 (20%)	
>60k+	5 (45.5%)	1 (10%)	
No answer	1 (9.1%)	0	
Tobacco Use			0.561

	Low Platform Use (N=11)	High Platform Use (N=10)	P-value
Current User	0	1 (10%)	
Former User	5 (45.5%)	4 (40%)	
Never User	6 (54.5%)	5 (50%)	
Alcohol Use			0.279
Current User	4 (36.4%)	6 (60%)	
Former User	0	0	
Never User	7 (63.6%)	4 (40%)	
Illicit Drug Use			1.0
Current User	0	0	
Former User	0	0	
Never User	11 (100%)	10 (100%)	
H&N Cancer Site			0.249
Benign/Other	2 (18.2%)	3 (30%)	
Oropharynx cancer	3 (27.3%)	4 (40%)	
Thyroid Cancer	2 (18.2%)	1 (10%)	
Salivary Gland Cancer	0	2 (20%)	
Oral cavity cancer	2 (18.2%)	0	
Skin cancer	2 (18.2%)	0	
Paranasal/nasal cavity	0	0	
Larynx Cancer	0	0	
Surgery			0.113
Trans-oral robotic surgery	2 (18.2%)	0	
Open resection w/ free flap reconstruction	2 (18.2%)	0	
Open resection and/or neck dissection	6 (54.5%)	10 (100%)	
Minor Procedure/Other	1 (9.1%)	0	
Post-Op Complications			0.012
No	11 (100%)	5 (50%)	
Yes	0	5 (50%)	

* mean ± standard deviation

Table 5

Non-Enroller Survey Results (N = 5 total)

	Number of Respondents	%
1 How would you describe your texting?		
I use it all the time with no limits	2	40%
I would like to use it more, but am limited by the costs of texts	1	20%
I don't like texts, I'd rather make calls	2	40%
I don't know how to text	0	0%
2 How concerned are you about your privacy using texts?		
I don't care at all, I'd text no matter what	0	0%
I've thought about it, but it doesn't really stop me	2	40%
I worried enough that I don't text very much	2	40%
I won't text because of it	1	20%
3 How comfortable are you with texting?		
I love it, I have no problems	0	0%
It's ok, I use it with specific people	3	60%
I can handle it, but I'd really rather call people	1	20%
I hate it	1	20%
4 How comfortable are you with your smartphone		
I love it, I can't stand to be away from it	0	0%
It's ok, I use it for calls and certain things (email, apps, etc.)	3	60%
I can handle it, but I really just use it for calls	1	20%
I hate it, my family/friends make me keep it	0	0%
I don't own a smartphone	1	20%
5 Do you use apps on your smartphone?		
All the time, and I like to try new ones	0	0%
Yes, but I have fewer than 25 on my phone	1	20%
I use a couple of apps, and only the ones I know	3	60%
I don't use or know much about apps	0	0%
I don't own a smartphone	1	20%
6 Do you trust your health care providers?		
Yes, completely	3	60%
Yes, I think so	2	40%
No, I don't think so	0	0%
No, definitely not	0	0%

Table 6

Satisfaction Survey Results (N = 19 total)

		Number of Respondents	%
1	How would you rate the quality of the texting platform?		
	Excellent	15	79%
	Good	4	21%
	Fair	0	0%
	Poor	0	0%
2	How would you rate the quality of the care you received as a study participant?		
	Excellent	14	74%
	Good	5	26%
	Fair	0	0%
	Poor	0	0%
3	To what extent has our program met your needs?		
	Excellent	15	79%
	Good	4	21%
	Fair	0	0%
	Poor	0	0%
4	How would you describe using the ease of using the texting platform?		
	Excellent, extremely easy	17	89%
	Good, moderately easy	2	11%
	Fair, somewhat easy	0	0%
	Poor, minimally easy	0	0%
5	If a friend or family member were in need of similar care, would you recommend this program to him/her?		
	Yes, definitely	17	89%
	Yes, I think so	2	11%
	No, I don't think so	0	0%
	No, definitely not	0	0%
6	Did the texting platform help you feel more connected to your health care team?		
	Very connected	15	79%
	Mostly connected	4	21%
	Mildly connected	0	0%
	Not very connected	0	0%
7	Have the services you received helped you deal more effectively with your health?		
	Yes, they helped a great deal	18	95%
	Yes, they helped somewhat	1	5%
	No, they really didn't help	0	0%
	No, they seemed to make things worse	0	0%

		Number of Respondents	%
8	In a general sense, how satisfied were you with the text messaging?		
	Very satisfied	16	84%
	Mostly satisfied	2	11%
	Mildly satisfied	1	5%
	Quite dissatisfied	0	0%
9	If you were to undergo surgery again, would you use the text messaging platform?		
	Yes, definitely	15	79%
	Yes, I think so	4	21%
	No, I don't think so	0	0%
	No, definitely not	0	0%
10	Do you wish this service were available to communicate with your other medical providers?		
	Yes, definitely	15	79%
	Yes, I think so	3	16%
	No, I don't think so	1	5%
	No, definitely not	0	0%